



FEMA

# Washington Coastal Studies and Products

November 1, 2012

**RiskMAP**  
Increasing Resilience Together



# RiskMAP Coastal Studies

- **Grays Harbor County**, preliminary release early 2013
- **Pacific County**, preliminary release early 2013
- **Snohomish County**, preliminary release 2013/2014
- **Thurston County**, preliminary release 2013/2014
- **Pierce County**, preliminary release 2013/2014
- **Kitsap County**, preliminary release 2014
- **Whatcom County**, preliminary release 2015/2016
- **Skagit County**, preliminary release 2015/2016
- **Mason County**, preliminary release 2015/2016
- **Island County**, preliminary release 2015/2016
- **Jefferson County**, preliminary release 2016/2017
- **Clallam County**, preliminary release 2016/2017
- **San Juan County**, preliminary release 2016/2017

# Modeling Comparison

	<b>Old Approach</b>	<b>New Approach</b>
Methodology	USACE Shore Protection Manual	FEMA Pacific Coast Guidelines
Wind data	Synthetic wind data	Measured wind data
Wave Model	1-Dimensional	2-Dimensional
Study Resolution	Calculations generalized over 9 broad regions	Calculations every 200 feet of shoreline
Topography	USGS Contour Maps	CBJ LiDAR

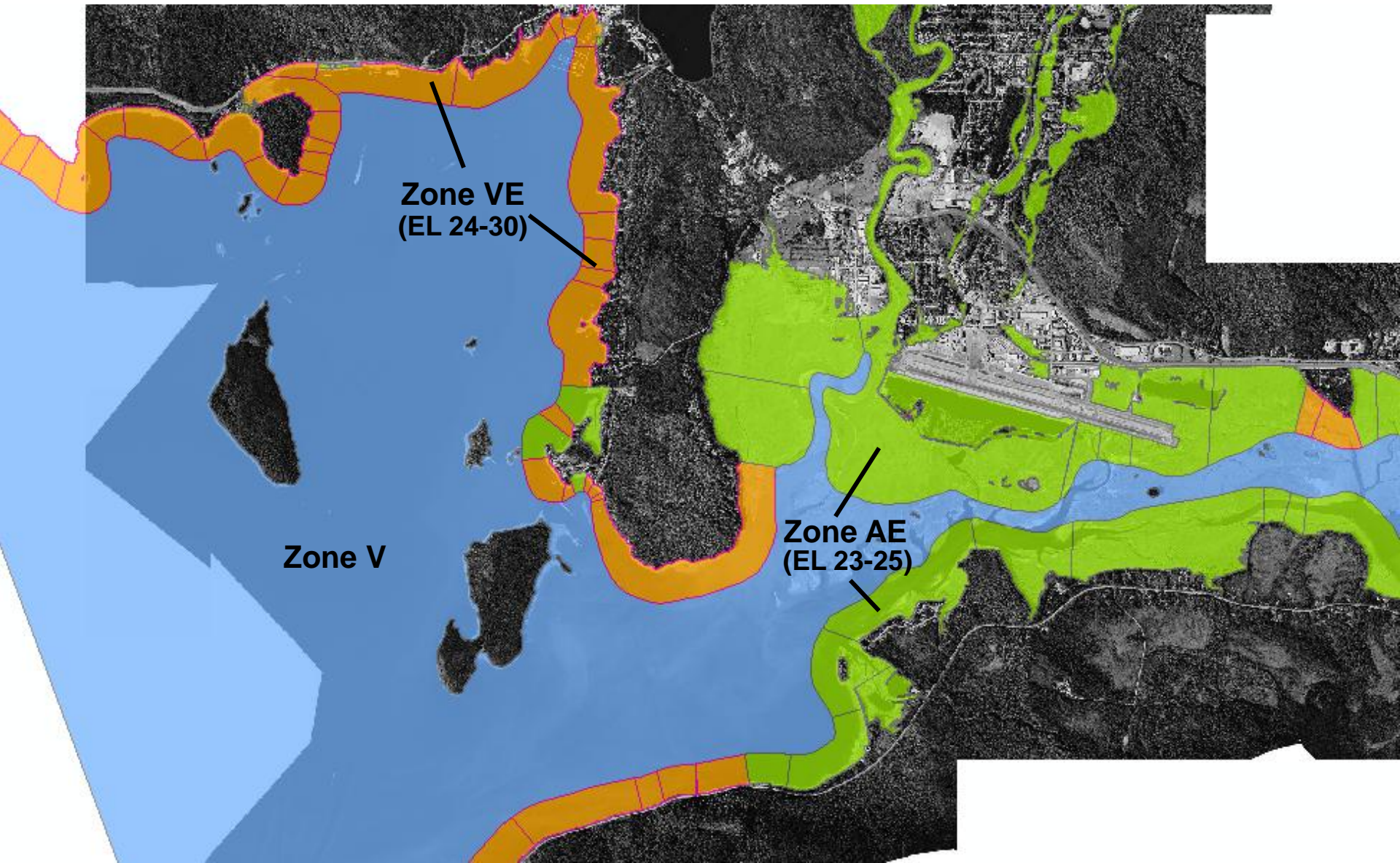
# Previous Coastal Mapping

(Auke Bay/Fritz Cove)

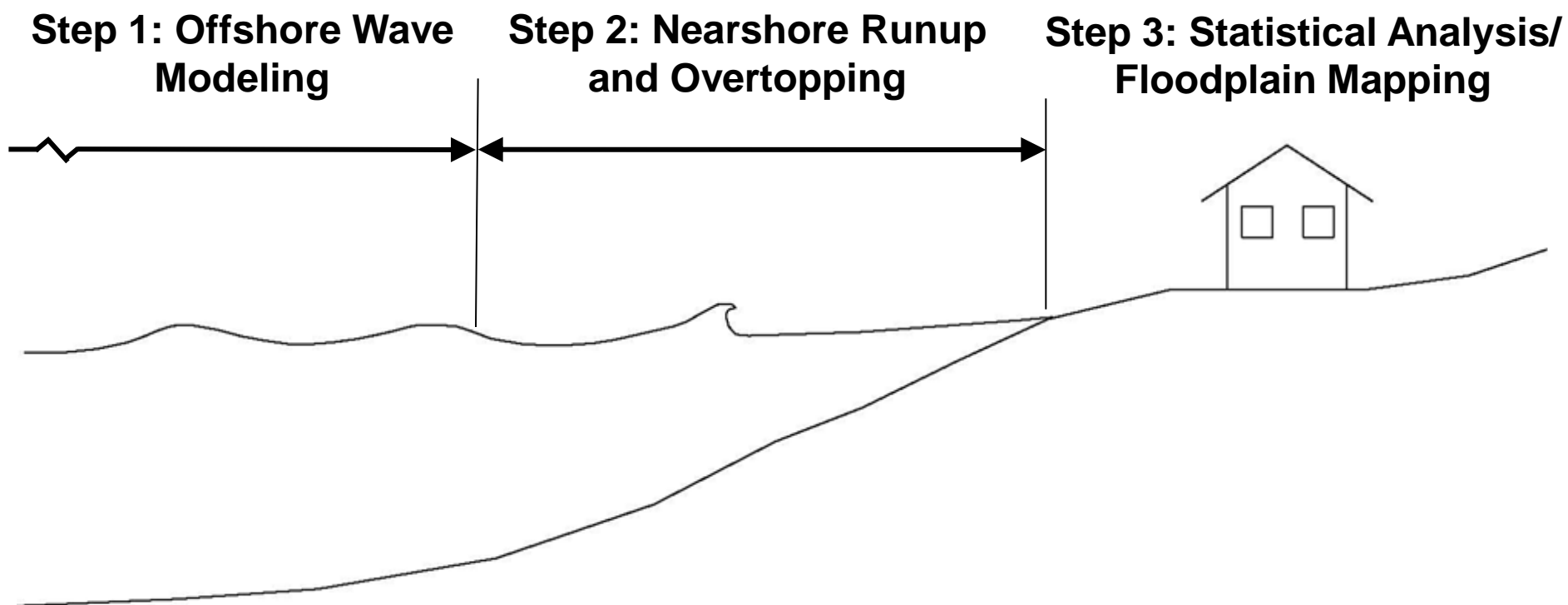




# New Coastal Mapping (Auke Bay/Fritz Cove)



# Modeling Process

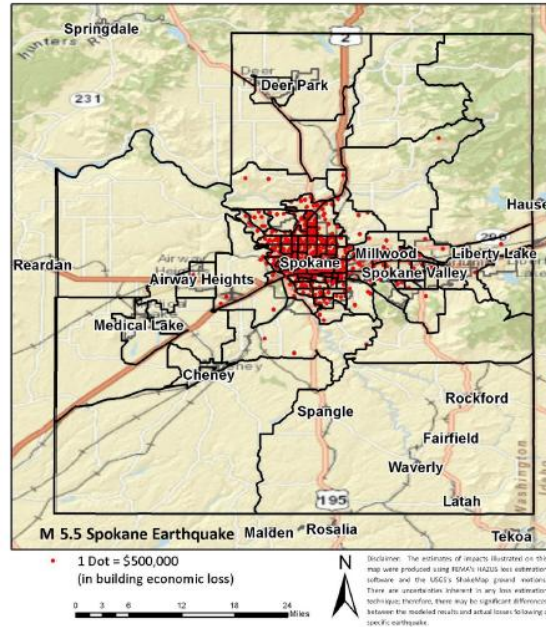


# Coastal Study Deliverables

- **Updated Flood Insurance Study**
- **Risk Report and Database**
  - Multi-hazard to include coastal flooding, tsunami, earthquake, landslides etc.
- **1% Annual Chance Depth Grid**
- **BFE+ Grid (Sea Level Rise)**



# Risk Report



## Risk Report

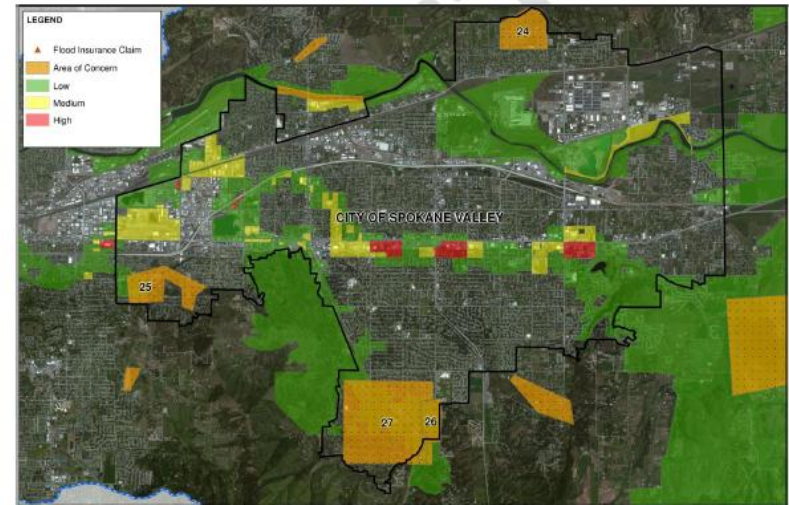
This Risk Report covers the Upper Spokane Watershed study area and is specific to Spokane County and its participating communities: the Cities of Spokane and Spokane Valley; the Town of Millwood; and Spokane County.

09/10/2012



**RiskMAP**  
Increasing Resilience Together

Mitigation Interest	Problem Statement	Map ID#
Flooding	Alluvial Fan flood risk isn't accurately represented on effective Flood Insurance Rate Map (FIRM). The City is currently restudying this area.	24
Flooding	There is development pressure in this area. A detailed floodplain study is desired in this location.	25
Flooding	Along the Golf Course, there is a trench and culvert issue which is restricting storm flows. An analysis of the culvert including the hydraulic capabilities can be conducted to assess the severity of the issue.	26
Wildfire	This development zone has limited egress. Outreach activities will be advantageous in this region.	27

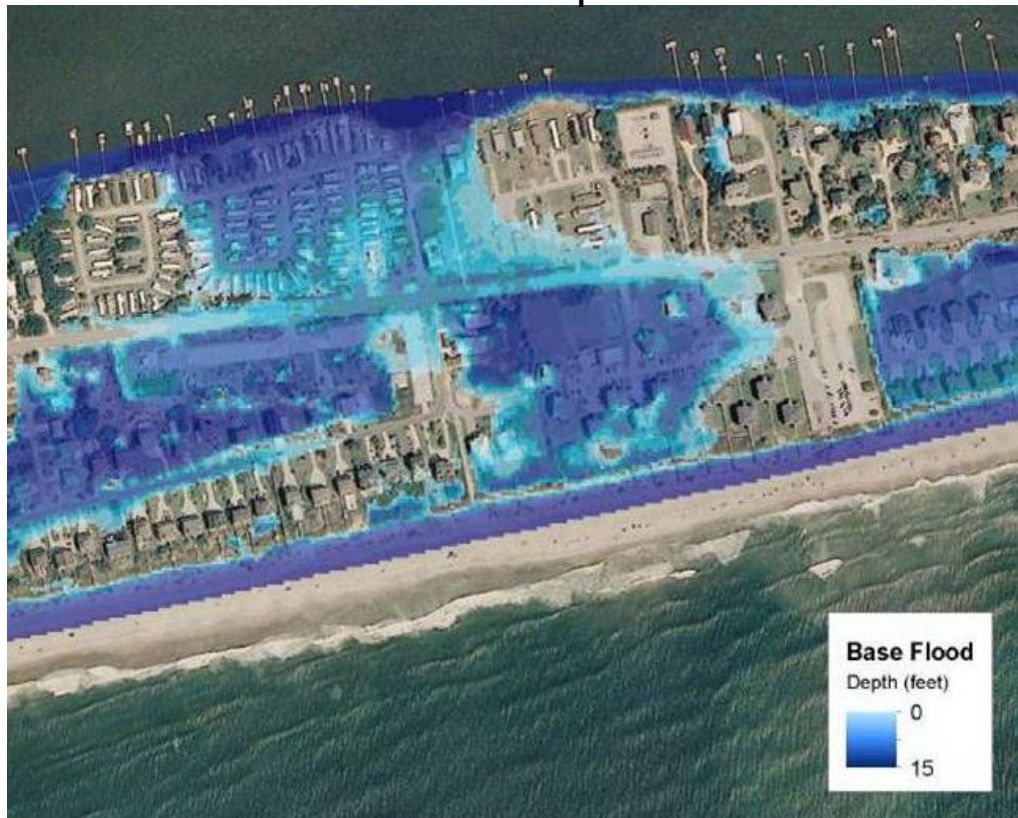


Estimated Potential Losses for Flood Event Scenarios For City of Spokane Valley										
	Total Inventory		10% (10-yr)		2% (50-yr)		1% (100-yr)		0.2% (500-yr)	
	Estimated Value	% of Total	Dollar Losses <sup>1</sup>	Loss Ratio <sup>2</sup>	Dollar Losses <sup>1</sup>	Loss Ratio <sup>2</sup>	Dollar Losses <sup>1</sup>	Loss Ratio <sup>2</sup>	Dollar Losses <sup>1</sup>	Loss Ratio <sup>2</sup>
Residential Buildings/Contents	\$6,523,920,000	64%	\$20,240,000	0%	\$27,530,000	0%	\$27,940,000	0%	\$33,400,000	1%
Commercial Buildings/Contents	\$2,285,750,000	22%	\$26,300,000	1%	\$39,580,000	2%	\$41,070,000	2%	\$48,880,000	2%
Other Building/Contents	\$1,420,880,000	14%	\$10,950,000	1%	\$16,310,000	1%	\$16,920,000	1%	\$19,630,000	1%
Total Building/Contents <sup>3</sup>	\$10,230,540,000	100%	\$57,490,000	1%	\$83,420,000	1%	\$85,930,000	1%	\$101,910,000	1%
Business Disruption <sup>4</sup>	N/A	N/A	\$3,490,000	N/A	\$4,900,000	N/A	\$5,060,000	N/A	\$5,900,000	N/A
TOTAL <sup>5</sup>	\$10,230,540,000	N/A	\$60,980,000	N/A	\$88,320,000	N/A	\$90,990,000	N/A	\$107,810,000	N/A

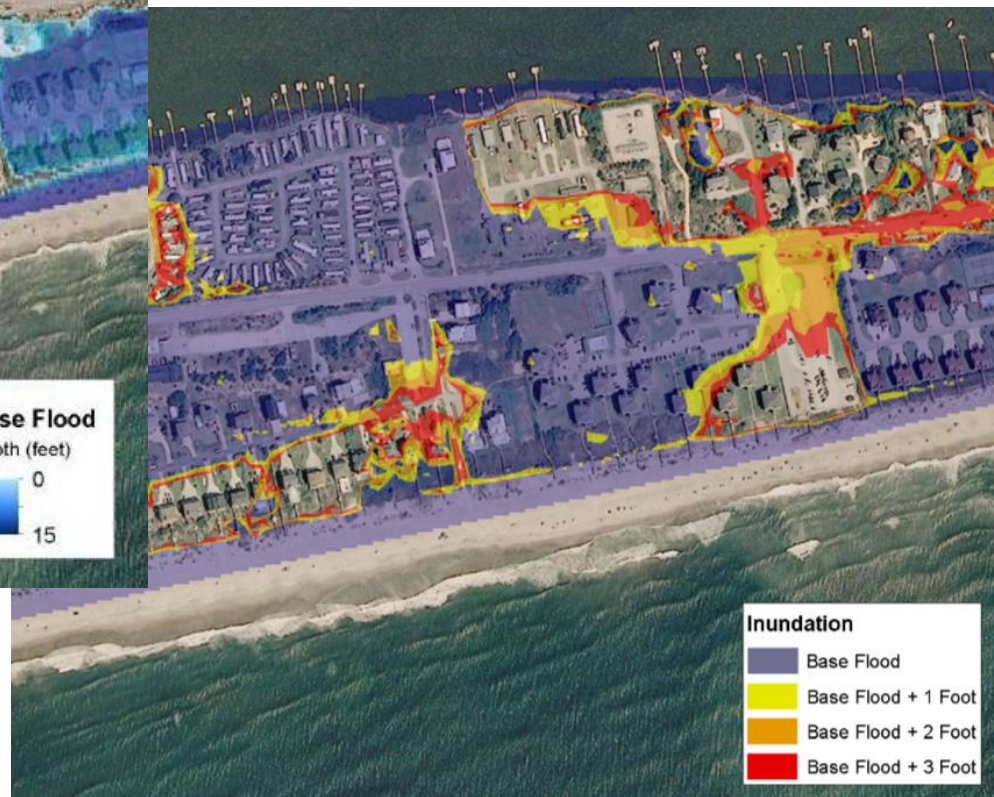


# Coastal Products

100 Year Depth Grid



Water Level Increases  
(Sea Level Rise)



# Mitigation Planning

- **Use coastal flooding hazard information and sea level rise scenarios to inform your risk assessment**
- **Identify both short and long term risks**
- **Use risk assessment to identify mitigation activities, both short and long term**
- **Identify response needs if mitigation actions are not feasible or timely**
- **Identify recovery priorities**

# Contacts

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